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VA completes SkyTote propulsive testing

by Melissa Withrow, Air Vehicles Directorate

WRIGHT-PATTERSON AIR FORCE BASE, Ohio — Scientists at the Air Vehicles Directorate recently came one step closer to making the SkyTote unmanned air vehicle an operational reality.

They successfully completed strap-down propulsive testing at National Testing Systems, Inc. in Santa Clarita, Calif. During testing, engineers strapped SkyTote to a load cell and operated its propulsion system to investigate prop rotor control, conduct calibrations, and examine control response.

Data collected from SkyTote's systems and the load cell, i.e. load measuring instrument, confirmed that the prop rotor system's propulsive force and cyclic control were both sufficient. Directorate engineers are now combining these test results with data from previous testing in the directorate's vertical wind tunnel to create a more accurate flight simulation and to write flight control software for the aircraft.

SkyTote is an unmanned cargo delivery vehicle. The prop rotor consists of two propeller blades that rotate in opposite directions and allow SkyTote to take off and land vertically, like a helicopter, and then shift to horizontal flight, like a fixed wing aircraft. This capability allows SkyTote to take off and land from confined areas while being able to fly faster than a helicopter could during flight. SkyTote will benefit the warfighter by delivering cargo to dangerous locations without jeopardizing a human pilot's safety.

In the next program step, the directorate will conduct a hover test to evaluate SkyTote's controllability in hover mode, adjust its onboard stabilization system, and determine atmospheric conditions acceptable for its operation. @